



Laser Diode Controller - 15 A, 12 Volt Laser Output 150 Watt Thermoelectric Temperature Controller

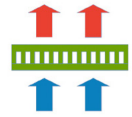


15 Amp, 12 Volt Laser Diode Driver 150 Watt TEC Controller

- o Laser Current to 15 A, Voltage up to 12 V
- o Bipolar Temperature Controller up to 150 W
- o Optimized for Multi-Chip Laser Diodes from Coherent/DILAS, nLight, Lumentum, and II-VI
- o CW Mode and Integrated Quasi-CW Pulse Generator, External Modulation Source
- o Full Complement of Protection Features



LASER
DIODE
CONTROLLERS



LDC-483 Controller for Laser Diode Bars and Arrays

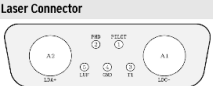
The LDC-483 laser diode driver is an affordable bias current source for semiconductor lasers, and includes industry-leading safety features to protect the laser diode across a wide range of operating conditions. The driver delivers a maximum output power up to 15 amps and up to 12 volts of compliance voltage, optimized for pump laser diodes.

Internal Function Generator & QCW Pulse Modes

In addition to CW mode, the LDC-483 includes an internal function generator which can be used to operate the laser diode in a QCW (pulsed) mode with user-set pulse width from 15 microseconds to CW. The rear panel d-SUB connector has dedicated pins for an external modulation function generator to be applied to the bias current driving the laser.

LDC-483 REAR PANEL CONNECTIONS


Laser Connector



SubD-7W2 Female

PIN.No	Abbr.	Function
A1	LDC-	Laser Diode Cathode
A2	LDA+	Laser Diode Anode
1	PILOT	Pilot Laser Supply
2	PHD	Photo Diode Cathode vs. GND
3	T1	Temp. Sensor 1 vs. GND
4	GND	
5	LUF	Supply 800mA 2.24V for fan vs. GND


Support & Peltier Connector



SubD-15 Female

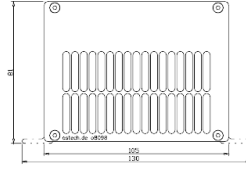
Pin.No	Abbr.	Function
3	MOD	Modulation Input
4	XRX	RS232-RX
5	XTX	RS232-TX
6	XGNC	RS232-GND
7:8	PEL+	Peltier element (+) if TEC is on Board
11	MDDGND	Modulation GND
12	GND	Common Ground
13	ILOCK	Interlock vs. GND
14:15	PEL-	Peltier element (-) if TEC is on Board
1,2,9,10	n.c.	may carry Signals depending on Type
SCR		Common Screen

Mains Connector

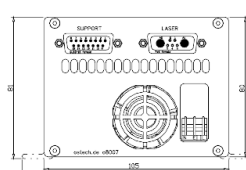


MAINS INPUT: 3 Pin, 5.08mm, with Friction Lock, 18-24 AWG
MOLEX HousingNo:10013036 TerminalNo:8701031

LDC-483 REAR PANEL LAYOUT



Standard version
4x Nuts M4
(bottom view)



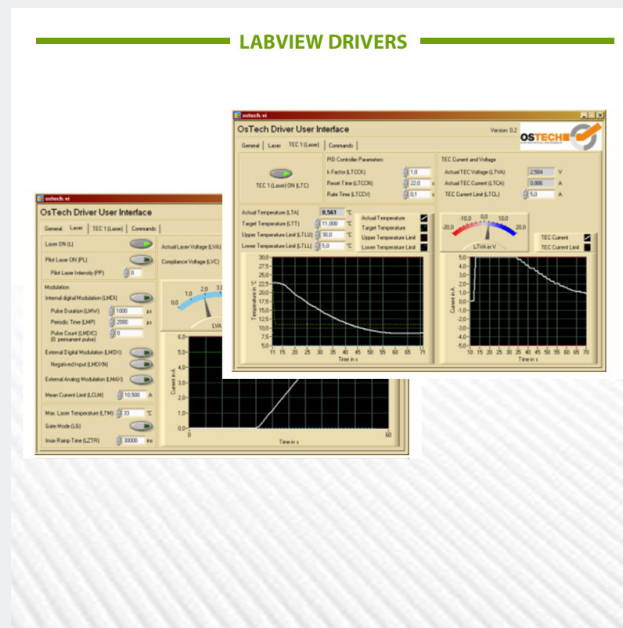
optional flange version
(bottom view)

Bipolar Temperature Controller Features

The integrated 150 watt TEC controller is a full P.I.D. loop controller based on a precision output current and voltage driver. The current and voltage source is designed for stable control of a Peltier cooler. They work with multiple temperature sensor types and utilize an H-bridge topology to drive the Peltier element for optimum laser temperature stability.

Protection Features for Multi-Chip Laser Diodes

The controller includes laser diode protection features such as current limit, soft start current ramp, and power surge filters to make sure that your laser diodes are protected at all times. The soft-start current ramp is pre-set at the factory to 300 milliseconds, but is user-adjustable. This current ramp-up and ramp-down function is designed to protect the laser from thermal shock during power-up and power-down sequences.





LDC-483 Laser Diode Controller Specifications

LASER DIODE CURRENT OUTPUT

- Output Current Range: 0.00 - 15.00 Amps
- Compliance Voltage Range: 12.00 Volts
- Current Setpoint Accuracy: $\pm 0.5\%$
- Current Noise & Ripple (rms): $< 50\ \mu\text{A}$
- PD Power Monitoring Included
- Current Setpoint Resolution: 4 mA
- Current Limit Setpoint Accuracy: $\pm 2\%$
- Photodiode Current Measurement Accuracy: $\pm 0.5\%$
- Photodiode Current Measurement Range: 0.00 - 4000 μA

LASER DIODE PROTECTION FEATURES

- Soft-Start Current Ramp to Setpoint (User Programmable)
- Soft-Start Current Ramp Factory Default Set to 300 Milliseconds
- User-Programmable Current Limit
- Open Circuit Detection; Short Circuit when Laser Diode Current Turned OFF
- ESD and Power Surge Clamp, AC Line Filter
- Reverse Voltage Transient Clamp
- Electronic Safety Interlock

TEC CONTROLLER

- TEC Output Power Total: 150 Watts
- TEC Output Current Range (bipolar): ± 8.00 Amps
- TEC Output Voltage Range (bipolar): ± 24.00 Amps
- Temperature Sensor Inputs: 10 k Ω Thermistor, NTC, PT100, PT1000
- TEC Control Loop Algorithm: Full P.I.D.
- P.I.D. Variables: User Adjustable to Optimize Temp. Settling Speed
- TEC Setpoint Resolution: 0.01 $^{\circ}\text{C}$
- Temperature Range: -25 $^{\circ}\text{C}$ to 150 $^{\circ}\text{C}$
- Factory Set Default Lower Temperature Limit: 5 $^{\circ}\text{C}$
- Factory Set Default Upper Temperature Limit: 35 $^{\circ}\text{C}$



LDC-483 Laser Diode Controller Specifications

QCW PULSE MODE AND MODULATION

- QCW Pulse Width: 25 μ sec to CW
- Pulse Time Base Accuracy: \pm 1.0%
- QCW Mode 1: User Adjustable Pulse Width and Repetition Rate using Internal Pulse Generator
- QCW Mode 2: External Trigger to Internal Pulse Generator: Rising Edge Triggered QCW Pulse with Internally Adjusted Pulse Width
- Modulation Input: BNC, Digital (TTL) or Analog, 10k Ω Impedance
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- Modulation Input Voltage Range: 0 ~ 4 Volts (4V = Max Current)
- Analog Modulation Bandwidth: 1 Hz – 20 kHz

AUXILIARY FUNCTIONS

- Temperature Sensor Input: 10k Ω NTC Thermistor
- Photodiode Cathode (Analog Connected to Gnd)
- Pilot Laser Anode, vs. Ground: (4 - 5V, 150 mA)
- Modulation Input
- Electronic Safety Interlock
- RS232 Connections
- External Fan Control Circuit, 2 - 24V, 800mA (max)

USER INTERFACE AND CONNECTORS

- RS232 Standard
- LabView Drivers Included
- Laser Connector: DB-7W2, Female
- Support and Peltier Connector: SubD-15, Female
- Main Power Connector: MOLEX Housing 10013036; Terminal 8701031

DIMENSIONS AND POWER INPUT

- Power Input: Universal 90V ~ 230 VAC, 50/60 Hz
- Dimensions: 81 mm (H) x 130 mm (W) x 160mm (L)

RECOMMENDED ACCESSORIES

- kab-39 Unterminated Connecting Cable -or- kab-231 Terminated Connecting Cable



Product Sales and Service

Orders for this product are fulfilled by LaserDiodeControl.com, part of the Laser Lab Source group. It is manufactured for Laser Lab Source by OsTech, GmbH.

Product Warranty

This product is sold with a full one-year warranty. It is warranted to be free from defects in material and/or workmanship for a period of one year from the date of shipment.



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